



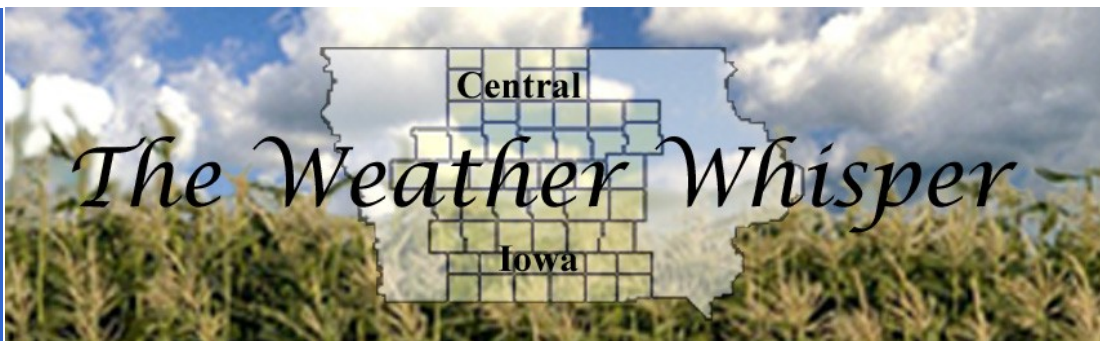
NATIONAL WEATHER  
SERVICE  
DES MOINES IA

- Heat is on!
- Lightning Awareness



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Volume 3, Issue 2

Summer 2009

## Don't let the heat sneak up on you

by Karl Jungbluth, Science and Operations Officer

Iowa typically has hot and humid summers, but there are hotter episodes that tax the human body and can be dangerous. Information here should help you to know what to expect when the next heat wave comes around.

Since 100 degree temperatures are fairly rare in central Iowa, it's the combination of high temperatures and high humidity that normally cause us problems. Physical exertion outdoors or exposure to the sun makes matters worse, and people with health problems or lower mobility, who can't get to a place with ventilation or air conditioning, are especially at risk. When our bodies get hot, blood flow increases and we begin to sweat, but sweating doesn't do much good if the humidity is high and there is no evaporation! So, the humid nature of Iowa's summer is part of the problem.



For this reason, the NWS has devised the "Heat Index", (sometimes referred to as the "apparent temperature"). The heat index, given in degrees F, is an accurate measure of how hot it really feels when combining the relative humidity with the actual air temperature. When the heat index tops 90 degrees, caution is advised. When the heat index climbs to 105 or above, this is considered a dangerous condition and the risk of health problems increases dramatically. A prolonged episode of several days, with warm nights following hot days (heat index above 105), is the most dangerous as heat builds up in buildings and concrete surfaces don't cool down. This is the time to be aware of your own health, and check on neighbors and family.

**When** excessive heat is expected, the NWS in Des Moines will issue either Excessive Heat Warnings or Excessive Heat Advisories.

- Excessive Heat Warnings are for prolonged situations of high heat index values, when the heat index is expected to reach 110 or higher during the day, and the heat index does not fall below 75 at night for two consecutive days. These are situations when the heat is oppressive, and the night

(Continued on page 2)

## Lightning Awareness By Jeff Johnson, Warning Coordination Meteorologist



Summer is the peak season for lightning in Iowa and the rest of the United States. On average, 62 people are killed each year across the United States from lightning. What is even worse, lightning victims are often young and in the prime of their lives. In 2008, 36% of lightning victims were males between the ages of 20 and 25. Hundreds of people are injured each year from lightning. People struck by lightning suffer from a variety of long-term, debilitating symptoms.

The National Weather Service is serious about lightning safety and educating people about lightning risks. Lightning Awareness' goal is to remind people about the serious risks of lightning and how to keep you and your family safe.

(Continued on page 3)

Photo courtesy of Mike Hollingshead:  
<http://www.extremestability.com/>

## Don't let the heat sneak up on you *continued from page 1*

provides little relief. The last time Des Moines reached this level of heat was July 30-31, 2001. High temperatures were in the middle 90s, but the air was extremely humid with dew point temperatures at 78 degrees.

- Heat Advisories are of shorter duration, when the heat index is expected to top 105 during the day, or the actual temperature tops 100 degrees.

The excessive heat information will be on the television and radio news, All-Hazards Weather Radio and our website, making it easy to find heat-related information.

### When is Central Iowa's Heat Season?

Dumb question, you might be thinking, but the window of excessive heat is typically fairly short. The vast majority of days with a heat index reaching 105 occur between the 13<sup>th</sup> of July and the 4<sup>th</sup> of August. So, look for the heat to peak during the last two weeks of July and the first week of August. Interesting tidbit: This peak of excessive heat mirrors the corn growth cycle in Iowa, basically the weeks after the corn tassels, when the corn plants are pumping massive amounts of moisture into the atmosphere as part of the growth process. Moisture in Iowa's atmosphere during this time can exceed that of the tropics!



Statistics show that excessive heat episodes can occur from the end of June through the end of August, but duration is typically very short, one or two days, outside of the peak weeks in late July and early August. The August events might have hotter temperatures, with less humidity, but the resulting heat and health effects are the same. *This information was compiled by Chris Frantsvog, Polk County Health Department, and Craig Cogil from our office.*

JULY							2009 AUGUST						
S	M	T	W	T	F	S	SUN	MON	TUE	WED	THU	FRI	SAT
							1	2	3	4	5	6	7
8	9	10	11	12	13	14	15	16	17	18	19	20	21
22	23	24	25	26	27	28	29	30	31				

### The Heat is bad enough, what makes it worse?

Studies by Larry Kalkstein from the University of Miami show that people get acclimated to heat, so a hot spell that develops quickly, or one that hits after cooler than normal weather, can be the most dangerous. Given that June of 2009 has been mostly a cool month, and the summer of 2008 was not hot, with only 6 days at 90 degrees or greater for Des Moines, *we could be set up for health-related problems should heat hit hard and early this July.*



Although people do get acclimated to the heat, long hot spells are especially dangerous. If the excessive heat lasts 3 days or more, be wary. Cities and urban areas also have the worst heat problems. Buildings and trees slow the circulation of cooling breezes, and the rooftops, concrete and blacktop tend to heat up fast and are slow to cool down.

### What you should do.

Everyone is susceptible to extreme heat, but the elderly, small children, people with limited mobility due to illness or weight, and those taking certain medications can be in particular danger. Know your own situation, and follow these suggestions:

- Slow down in the sun or stay in the coolest place possible when excessive heat warnings or advisories are in effect.
- Dress in lightweight and light colored clothing, and eat lightly.
- Drink lots of water, and do not drink alcoholic beverages.
- Stay out of the sun and stay in air-conditioned spaces. Make sure that your neighbor has a cool spot too.

General information on heat effects, including heat disorder symptoms and the heat index can be found at:

<http://www.magazine.noaa.gov/stories/mag208.htm>

## New WSR-88D Software to be Implemented this Summer *by Dave Reese, Electronics Systems Analyst*

A new radar software version is about to be implemented at KDMX. This new version will implement the following enhancements to the current WSR-88D System:

- Implements Clutter Mitigation Decision to generate Clutter Bypass Maps. (See attached link to NEXRAD Now publication then go to issue 18 page 19.)
- Adds improved Mesocyclone Detection Algorithm. (See attached link to the NEXRAD Now publication then go to issue 18, page 8.)
- Updates the current Operating System software.
- Repairs several problems noted with previous builds.

This new software is expected to be installed in early July 2009. Further information can be viewed on the following internet link: <http://www.roc.noaa.gov/nnw.asp>.



## 2009 Cooperative Observer Length of Service Awards *by Brad Fillbach, Cooperative Program Manager*



Eugene McAlexander (right) of Beaconsfield, Iowa received his 20 year length of service award on June 12th. In the photo: (left) Brad Fillbach, Hydro Met Tech (HMT), National Weather Service (NWS) Des Moines.



Ralph Gast of Steamboat Rock, Iowa receives his 15 year Length of Service Award. Presenting Ralph with his award is Jeff Zogg, Senior Service Hydrologist, NWS Des Moines.



Mark Hoover of Eldora, Iowa received his 15 year Length of Service Award on May 1, 2009. Brad Fillbach, HMT, NWS Des Moines presented Mark with his award.



Alan "Gabby" Galbraith (right) of Sac City, Iowa received his 30-year Length of Service award in June 2009. In addition, Alan has decided that after 30 years as a COOP observer, it was time to call it quits. Thank you Gabby for your many years of dedicated service to the National Weather Service. Brad Fillbach, HMT, NWS Des Moines presented Gabby with his award.

## 2009 Spotter Training Wrap Up *Brad Small, Senior Meteorologist*

After starting in late February, the 2009 spotter training season ended April 21 in Humboldt with a total of 2,563 spotters trained. Of the 51 counties in our warning and forecast area, 47 of them hosted talks. 52 training sessions were completed overall, with some counties having multiple talks, which resulted in an average of just over 49 per session. In 2008, 2,093 spotters were trained during 51 talks or just over 41 per talk. All of our sessions are free of charge and open to the public on a first come, first served basis. National Weather Service (NWS) personnel are typically invited by county emergency managers, fire departments or amateur radio organizations to conduct the training. The NWS does not schedule talks independently.

Although official records are not kept, attendance this year was one of the highest in recent history. This increase in the number of spotters trained could very well be attributed to the active and deadly 2008 severe weather season which included an EF5 tornado in Parkersburg and New Hartford, and an EF3 which hit the Little Sioux Boy Scout camp. The National Weather Service in Des Moines currently has over 2,900 spotters registered, many of which complete training either annually or biennially.

## Lightning Awareness *continued from page 1*

**Remember, when thunder roars, go indoors!**

### Iowa Lightning Statistics and Facts:

Recent Upper Midwest and Missouri Valley Lightning Deaths:

May 6, 2009: A 42 year old male was killed in his yard in St Cloud, MN  
 June 11, 2008: A 20 year old male was killed in his yard in Curlew, IA  
 July 7, 2008: A 16 year old male was killed at the family farm in Watertown, WI  
 September 14, 2008: A 49 year old female was killed under a tree in La Due, MO  
 March 29, 2007: A 17 year old male was killed at a track meet in Carbondale, IL  
 April 24, 2007: A 25 year old male was killed under a tree in University City, MO  
 June 8, 2007: A 30 year old male was killed on a boating dock in Deer River, MN  
 July 9, 2007: A 25 year old male was killed under a tree in St. Louis, MO  
 August 27, 2007: A 75 year old male was killed golfing in Madison, WI

For complete information about lightning and light safety, visit the National Weather Service's Lightning Safety Page at : <http://www.lightningsafety.noaa.gov/>



Spotter training sessions include training on how to prepare before spotting, what to report, how to report, the difference between wall clouds and shelf clouds, funnel clouds versus tail clouds, and what technically defines a tornado. For more information on our spotter program, as well as links to on-line training, course notes, and field guides, please visit our spotter page at <http://www.crh.noaa.gov/dmx/?n=spotterinfo>. The majority of the 2010 schedule should begin to take shape in December 2009, January and February 2010.

**Fun Fact:** Over the past 20 years, Iowa has been in 21 Presidential disaster declarations. Flooding has been the sole or contributing factor in 17 of them, or 80%. (Source: FEMA)

## Outlook for the Summer into the Fall 2009 *by Miles Schumacher, Senior Meteorologist*

BMRC/NMC Global SST Anomaly  
Week Ending 21 Jun 2009

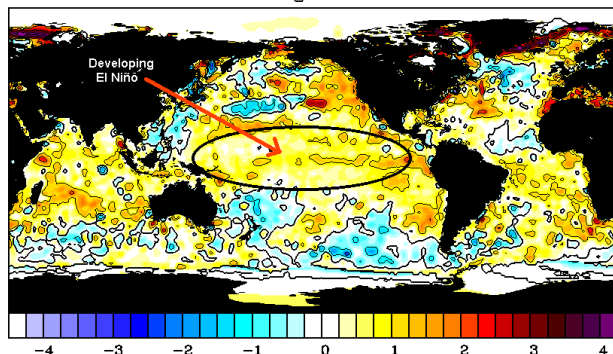


Figure 1: Sea Surface temperature departure from normal.

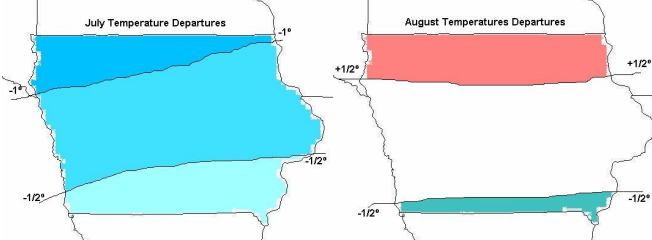


Figure 2: Mean Temperature departure forecast for July 2009 on the left, and August 2009 on the right.

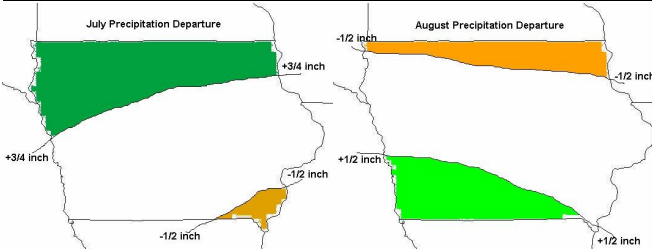


Figure 3: Precipitation departure forecast for July 2009 on the left, and August 2009 on the right.

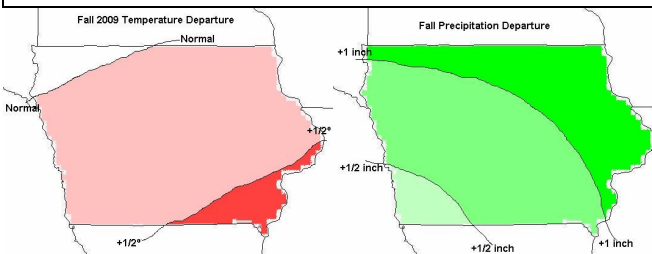


Figure 4: Fall 2009 forecast departures from normal of temperature on the left, and rainfall on the right.

The spring of 2009 turned out to be quite wet, though fortunately nowhere near as wet as the spring of 2008. Rainfall was above normal through March and April, with May only coming in a little below normal. The warm air was slow to arrive, especially as we moved through the later part of the season. There was a notable lack of days with highs in the 80s and 90s across the state. Conditions turned around rather suddenly after mid June with a week of temperatures reaching the 90s in many areas of the state.

Looking ahead to the rest of the summer, one has to wonder if the recent warm weather is about as hot as it will get. There are significant changes taking place in the equatorial Pacific. Whereas we saw much of the equatorial Pacific in a cool temperature regime and weak La Niña pattern during the late winter and early spring, we now see a significant turnaround. Temperatures are warmer than normal across the entire equatorial Pacific and indications are quite strong that we are moving toward an El Niño by late summer into the boreal winter (Figure 1).

The atmospheric response to El Niño is not as rapid as for its counterpart, La Niña. The weather over the past few months has not been typical of either La Niña or El Niño, since no strong signal for either one has been present for the past few months. Typically, the lag time from the onset of El Niño conditions to the atmospheric response is on the order of 2 to 3 months. As was mentioned in the last issue of this newsletter, careful monitoring of the Pacific Ocean state would be necessary as a change toward El Niño conditions would signal a cooler and wetter summer than if it would have remained in a La Niña state.

One can look at weather patterns of the recent past to give some indications of near term weather trends in the future. Based on the best fit from several of the years that were similar to the spring just past, and the expected change of state from neutral to El Niño, the remainder of the summer is not likely to vary far from normal, though it appears there will be a leaning toward cooler than normal. It appears there is approximately a 30% chance of July turning out significantly cooler than normal, with a 70% chance it will be near to a little below normal. There is more variability with August temperatures and the onset of an El Niño state. There is a 50% chance that August will be below normal and a 50% chance of it being normal or above normal. Rainfall is quite variable for years with a similar pattern to this year. The chances for a sudden turn to very dry conditions are low, at under 20%. There are approximately even chances for the rest of the summer remaining either normal or wetter than normal (Figures 2 and 3).

The fall season is somewhat more speculative given the uncertainty of whether the El Niño that is developing continues to in-

tensify, and if so how strong it will be. If it continues to strengthen, at some point the fall season will turn cool and wet typically. Initially it appears the effect of the developing El Niño on the atmosphere will be limited. This suggests the fall season will lean toward a warmer than normal side. Based on expected conditions, the odds of this fall being warmer than normal are about 2:1, however the departure is expected to be minor. Precipitation is typically above normal for years either in El Niño or transitioning into it. The odds lean toward a wetter than normal fall season, though the odds of the fall turning out to be extremely wet are only about 1 in 3. Figure 4 shows the most likely outcome based on the probabilities.

These outlooks are based more heavily on statistics than many of the methods used by the [Climate Prediction Center \(http://www.cpc.noaa.gov/index.php\)](http://www.cpc.noaa.gov/index.php). The complete set of official forecasts from the Climate Prediction Center can be found on our [website \(http://www.weather.gov/climate/climate\\_prediction.php?wfo=dmx\)](http://www.weather.gov/climate/climate_prediction.php?wfo=dmx).



## Parkersburg/New Harford EF-5 Tornado One Year Anniversary

**Commemorations** by Brenda Brock, Meteorologist-In-Charge

May 25, 2009, marked the one-year anniversary of the EF5 tornado that struck northeast Iowa communities. Parkersburg's annual Memorial Day ceremonies to honor local veterans also commemorated the recovery effort in a town that was 1/3 destroyed by the twister. The weekend's events included memorials, music, Miracle Park Dedication, tornado stories, picnics and sports competitions.

The town continues "Growing with Pride" as homes and businesses rebuild. People continue to marvel at the miracles of the day followed by the tremendous support after the EF-5 tornado took seven local resident's lives and two near neighboring New Hartford.

Residents knew the severe weather was coming. By mid-afternoon, the area was under a tornado watch. A tornado warning issued by our severe weather operations staff alerted residents in the path of the storm via NOAA All Hazards Radio and Parkersburg sirens. The warning and reports from amateur radio operators and severe storm spotters helped initiate quick actions from the police and fire department personnel.

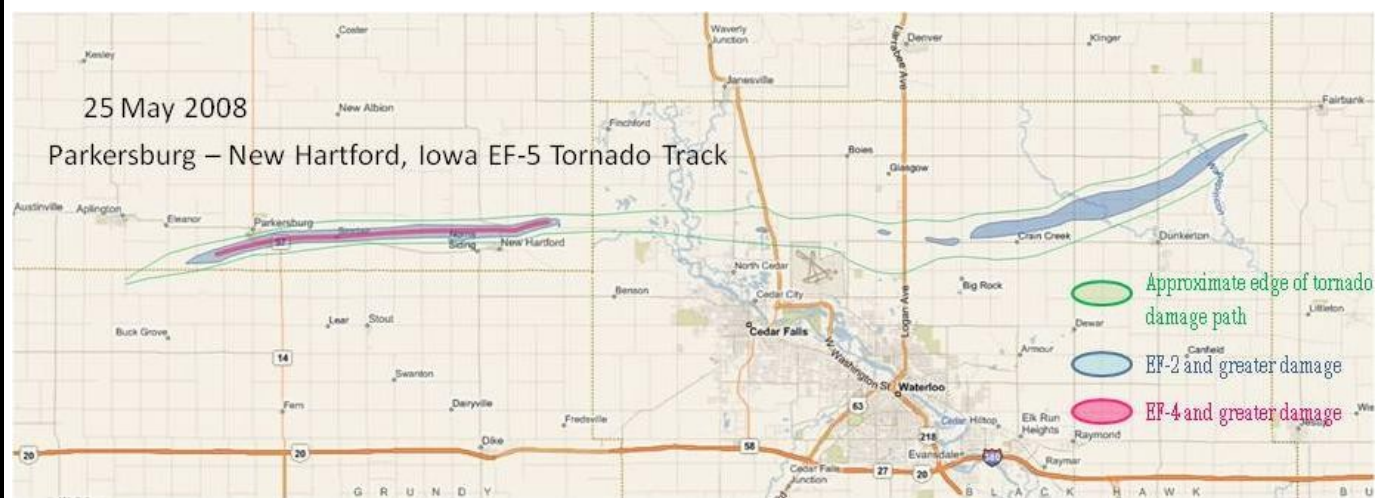
Brenda Brock, Meteorologist-in-Charge, presented NOAA's National Weather Service "Severe Weather Preparedness Hero Awards" to the Parkersburg Police and Fire Departments.

On May 31, 2009 a fund raising event was held in Ames for the benefit of the Parkersburg Tornado Recovery Fund and the Beyond Welfare organization of Story County. There were speakers from Parkersburg who spoke about their town and how the tornado affected their lives. Meteorologist Frank Boksa from the National Weather Service in Des Moines was invited to give a presentation on tornadoes in Iowa. The presentation consisted of severe weather climatology as well as severe weather safety and methods to receive weather information in order to plan and be prepared should severe weather threaten. The presentation lasted about an hour and was well received.



Picture from Parkersburg. Listed Left to Right:

Mayor Robert Haylock, FEMA representatives, Brenda Brock National Weather Service, A-P Coach Ed Thomas, Lt. General Ron Dardis, Executive Director -Rebuild Iowa Office, Police Chief Chris Luhring and members of the local Fire Department members.



Jan 1, 2008 through June 30, 2008					Jan 1, 2009 through June 30, 2009 (events preliminary)				
Tornado Warnings	Total Warnings	Total Warned Area	Total Tornado Events	Total Events	Tornado Warnings	Total Warnings	Total Warned Area	Total Tornado Events	Total Events
110	475	250,352 sq mi	53	638	16	143	86,429 sq mi	24	263

## Employee Spotlight—Brad Small *Senior Meteorologist*

My enthusiasm for weather started at a young age with severe thunderstorms and blizzards near my home town of Ottawa, Illinois capturing my interest in the early and late 70s. This interest carried right on through high school and pointed me toward my career path in meteorology where I attended Iowa State University and graduated with a B.S. in Meteorology in 1990. After graduation I was fortunate enough to begin my National Weather Service (NWS) career in St. Louis, Missouri, which had a brand new office at the time, and was one of the first offices in the country to begin using the WSR-88D Doppler Radar. This enabled me to get a head start evaluating data from this new radar network which was soon to be deployed across the county. While in St. Louis I worked several memorable events including the Floods of 1993 which devastated Missouri, Iowa, and other parts of the Midwest.



By the end of this summer I will have completed my fifteenth year as a meteorologist at the Des Moines office which began in 1994 as a General Forecaster before being promoted to Senior Meteorologist in 1996. Some of the most memorable weather events I've worked include the May 27, 1995 tornado outbreak, the blizzard that hit central Iowa January 26, 1996, the outbreak of severe weather in late May 2004, and of course the extreme extended flooding and severe weather episodes that occurred through much of last spring and summer.

I don't really have one particular interest but enjoy most aspects of my job including severe weather, winter storms and hydrology. The weather is always at least a little different every day so no two forecasts or events are ever the same. This diversity in weather, along with the constant infusion of new research and technology and the opportunity to do spotter training and other outreach, also helps keep my job exciting and enjoyable.

While away from work I enjoy spending time with my wife, two daughters and our golden retriever. I follow most anything to do with drumming and music, and many sports—especially Iowa State athletics, the Chicago Cubs, and Chicago Bears.

**Climatological Data for March to June 2009**

Location	Month	Average Temp	Departure	Highest	Lowest	Rain / Snow	Departure
Des Moines	Mar	41.4°	+3.0°	74° (5 <sup>th</sup> )	8° (1 <sup>st</sup> )	4.73" / 0.1"	+2.52" / -4.0"
	Apr	50.9°	+0.3°	86° (24 <sup>th</sup> )	27° (3 <sup>rd</sup> , 6 <sup>th</sup> , 7 <sup>th</sup> )	5.65" / 1.3"	+2.07" / -1.4"
	May	62.8°	+0.9°	86° (19 <sup>th</sup> )	41° (17 <sup>th</sup> )	3.79" / 0.0"	-0.46" / 0.0"
	June	72.5°	+1.1°	97° (23 <sup>rd</sup> )	53° (9 <sup>th</sup> )	4.69" / 0.0"	+0.12" / 0.0"
Mason City	Mar	33.6°	+0.7°	66° (16 <sup>th</sup> , 21 <sup>st</sup> )	0° (12 <sup>th</sup> )	2.13" / T"	-0.11" / -6.1"
	Apr	45.4°	-1.0°	90° (24 <sup>th</sup> )	20° (3 <sup>rd</sup> )	2.79" / 0.1"	-0.57" / -2.6"
	May	58.0°	-1.0°	90° (19 <sup>th</sup> )	32° (17 <sup>th</sup> )	5.50" / 0.0"	+1.16" / 0.0"
	June	66.4°	-2.3°	93° (22 <sup>nd</sup> )	41° (9 <sup>th</sup> )	2.68" / 0.0"	-2.28" / 0.0"
Waterloo	Mar	36.7°	+1.7°	69° (16 <sup>th</sup> )	4° (12 <sup>th</sup> )	3.08" / T	+0.95" / -4.8"
	Apr	46.8°	-1.0°	87° (24 <sup>th</sup> )	21° (8 <sup>th</sup> )	5.00" / 4.3"	+1.77" / +2.1"
	May	59.7°	-0.5°	86° (19 <sup>th</sup> )	33° (17 <sup>th</sup> )	4.11" / 0.0"	-0.04" / 0.0"
	June	68.8°	-1.1°	93° (23 <sup>rd</sup> )	45° (9 <sup>th</sup> )	3.58" / 0.0"	-1.24" / 0.0"
Ottumwa	Mar	40.6°	+1.0°	79° (17 <sup>th</sup> )	9° (12 <sup>th</sup> )	4.44" / M	+2.09" / M
	Apr	48.4°	-3.2°	83° (24 <sup>th</sup> )	22° (8 <sup>th</sup> )	3.74" / M	+0.46" / M
	May	60.8°	-2.1°	83° (22 <sup>nd</sup> )	36° (17 <sup>th</sup> )	5.08" / M	+0.52" / M
	June	70.9°	-1.6°	93° (22 <sup>nd</sup> , 27 <sup>th</sup> )	51° (9 <sup>th</sup> , 14 <sup>th</sup> )	6.27" / M	+1.76" / M

## March through May 2009 Weather Review *by Craig Cogil, Senior Meteorologist*

### Temperatures:

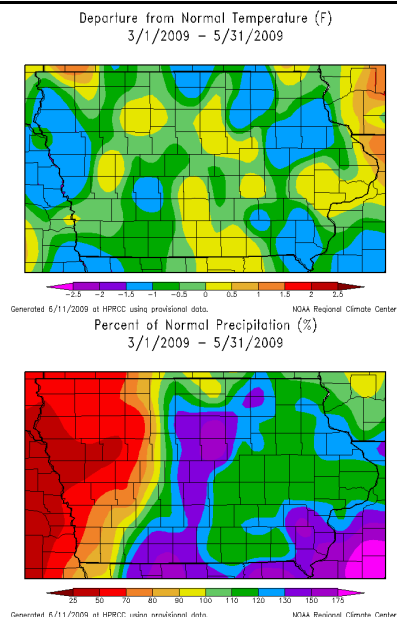
Iowa temperatures during the spring months held near normal with most locations being within a degree of normal for the three month period from March through May. There was really no trend in the state with pockets of cooler temperatures in between areas of warmer readings. March had the largest departure statewide with readings 1.7 degrees above normal.

### Precipitation:

Precipitation during the period was close to normal for statewide average. However, a tight gradient of precipitation existed across the state. The eastern two-thirds of the state saw precipitation at or above normal for the spring with a quick drop off to below normal values in western Iowa. In fact, some locations around the Sioux City area received only about 50-75 percent of normal rainfall. That is compared with locations due east near the Iowa Falls area that were sitting at over 130 percent of normal. In general, precipitation was adequate for a good start to the growing season but not sufficient to cause major river flooding.

Rankings are based upon 137 years of records. All values are preliminary.

Month	Temperature	Departure from Normal	Rainfall	Departure from Normal	Temperature Ranking	Precipitation Ranking
March 2009	37.7°F	+1.7°F	3.04"	+0.83"	43 <sup>rd</sup> Warmest	21 <sup>st</sup> Wettest
April 2009	47.8°F	-0.7°F	3.67"	+0.34"	51 <sup>st</sup> Coldest	36 <sup>th</sup> Wettest
May 2009	60.4°F	+0.2°F	3.57"	-0.66"	61 <sup>st</sup> Warmest	57 <sup>th</sup> Driest
Spring 2009	48.6°F	+0.4°F	10.28"	+0.51"	67 <sup>th</sup> Warmest	41 <sup>st</sup> Wettest



## CoCoRaHS Observers Needed *by Ken Podrazik, Meteorologist*

The state of Iowa, as well as the rest of the United States, has an extensive network of manual and automated observing weather stations. The majority of these stations measure precipitation and temperature, while some automated gauges measure wind, sky cover, dew point, and barometric pressure. Although these new technological advances of the automated gages are a great asset to the National Weather Service (NWS), they are costly to install and maintain. The NWS uses this observational dataset as ingest into their forecast models, river hydrographs, and climate data. With more and more observations available to the NWS and other researchers, the quality of these products will continually improve. As technology continues to advance, so does the equipment involved with taking daily observations. However, manual observations are still a crucial element to the NWS operations. As a result, a relatively new observing network was started named the Community Collaborative Rain, Hail, and Snow Network (CoCoRaHS). This network is a great supplement to the Cooperative Observer Network run by the National Weather Service.

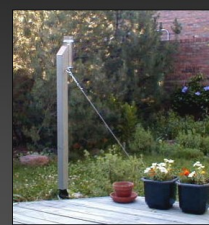
The Colorado Climate Center at the Colorado State University created CoCoRaHS in 1998. The program was a result of a flood that affected Fort Collins, Colorado in 1997. The network has expanded to over 12,000 observers within 46 states. Iowa joined the CoCoRaHS network in August of 2007 and now has over 400 observers throughout the state.

CoCoRaHS is a volunteer network and each observer is responsible for weather observations at their individual living location. Anyone who is enthusiastic about weather and interested in taking daily weather reports can sign up as an observer. The observations include rain, hail, or snow, and sometimes all of the above depending on the storm. Precipitation reports are sent via the internet and are available to anyone online. Observers take measurements once a day whether or not precipitation occurred; whether it is in the middle of the winter when 10 inches of snow accumulates, or a brief light rain shower drops a

(Continued on page 9)

### CoCoRaHS: Simple Tools to Study Rain

Rain Gauge



Example Station



## The Historic 2008 Iowa Flood: One Year Later *by Jeff Zogg, Senior Hydrologist*

Last month the people of Iowa marked the one-year anniversary of the historic 2008 flood.

During last year's flood, I was the Hydrologist for the Quad Cities NWS office. Last year's flood event was the most challenging, exciting and sobering of my career thus far. It was exciting because I was able to see hydrologic events which most hydrologists only read or learn about books. It was also sobering because it disrupted or destroyed many lives.

Last year's flood personally affected me, too. For several days, flooded roads prevented me from returning home to my family in Iowa City. Thankfully my family was fine. My family's hardship paled in comparison to the trials faced by many others. Many people are still experiencing its aftermath now.

After the flooding, the NWS conducted two internal service assessments. One assessment was a national level assessment. In addition, the Des Moines NWS office conducted its own office level service assessment. The goals of both service assessments were to (1) determine how well we met the needs of our partners and users and (2) what we can do to improve our hydrologic services. The NWS Des Moines office level assessment is complete and is posted on our Web site (<http://www.crh.noaa.gov/dmx/?n=2008floodassessment>). The national level assessment is nearing completion.

While both assessments found that we met most needs of our partners and users, those same partners and users said we could do even better. Among the most common suggestions were flood inundation mapping, river forecasts which "chase the crest" less often and more automated river flood gauges. I am happy to report that we have already become involved in all three of these efforts.

### Flood inundation mapping

For those areas which presently have it, flood inundation mapping is an invaluable tool. Flood inundation maps are different than the FEMA flood plain maps. While FEMA flood plain maps show the 100-year flood levels, flood inundation maps will allow people to see which areas will be flooded when the river reaches a user-selected level.

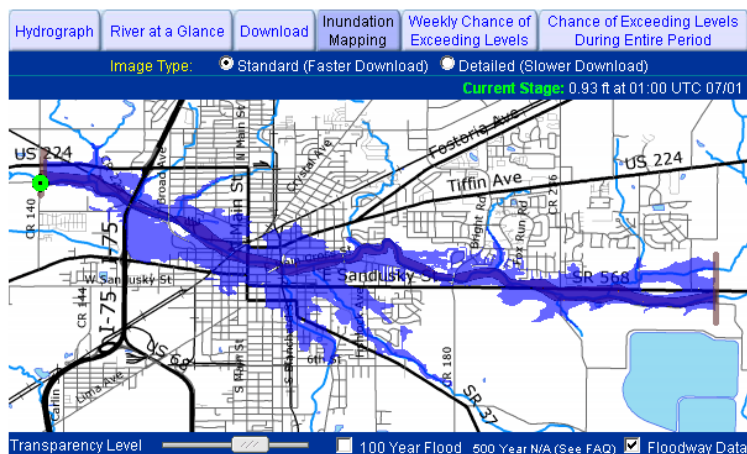
After last year's flood, the NWS, USGS, U.S. Army Corps of Engineers and the Iowa Institute of Hydraulic Research (IIHR, part of the University of Iowa), along with other state and Federal agencies, community representatives, policymakers and researchers came together to share what we collectively learned from the flood. We agreed that flood inundation mapping is a very important need.

This spring, the State of Iowa took a historic step by establishing the Iowa Flood Center at the University of Iowa. In addition to flood inundation mapping, the Center's goals are to develop numerical models which will improve flood forecasting and mitigation in Iowa. According to Larry Weber (Director of IIHR), a National Flood Center has been proposed to the National Science Foundation. If funded, Iowa would be a national leader in multi-disciplinary flood research and education.

We are presently working with the Center to submit a project proposal to develop flood inundation mapping at to 20 locations in Iowa. If funded, this demonstration project will allow for people to see, geographically, which areas are threatened by forecast floods. The final product is expected to be similar to flood inundation maps we already have for locations elsewhere in the U.S. See <http://www.weather.gov/ahps/inundation.php> for examples.

### River forecasts which "chase the crest" less often

Last year's flooding was partially due to repetitive, daily, heavy rain events. Last year's river forecasts were often underdone because they failed to include rainfall beyond the 12 to 24 hour period, which our models use in the forecast. Thus, we were often "chasing the crest" by adjusting our forecasts upward. The impacts on our partners and users were stressful and frustrating. For example, many locations frantically built their temporary flood protection to ever higher levels, or hastily evacuated more and more people based on ever increasing forecasts.



### Fun Facts

Jan 1, 2008 through June 30, 2008			Jan 1, 2009 through Jun 30, 2009		
Flash Flood Warnings	Flash Flood Events	Total Warned Area	Flash Flood Warnings	Flash Flood Events	Total Warned Area
107	167	102,856 sq mi	10	25	6982 sq mi

(Continued on page 9)



## The Historic 2008 Iowa Flood *continued from page 8*

"expected" river forecast. They want to know what would happen if more rain falls than expected. What would happen if less rain falls than expected? What is the worst case scenario?



We now generate this information internally for most of our river forecast points, and can share it verbally in briefings with emergency managers. We are now working on bringing this information to our Web pages for all to see. Once this information is available, you will be able to see the range of possibilities in our river forecasts.

### More automated river flood gauges

Automated river flood gauges are a very important part of our river forecast process. They allow us to see the observed real-time and historical river levels. We use this information to make our river forecast models as accurate as possible. More automated river flood gauges would allow us to better determine how rivers respond in different areas, and may also allow us to provide flood forecasts for new locations.

Although we depend heavily on automated river flood gauges, we normally depend on our partners and users to maintain them. In Iowa, the USGS and the U.S. Army Corps of Engineers maintain most of the real-time flood gauges. These agencies depend on the generous financial support of other community, county and state government agencies. In some cases private industry also provides financial support.

It presently costs \$15,000 to \$20,000 to install a new automated flood gauge, and \$15,000 per year to maintain it. These costs are often shared among multiple government agencies because they can be tough for any one agency to absorb especially now.

Help is on the way. This year the Iowa Legislature provided funds to the Iowa Department of Natural Resources (DNR) for new river flood gauges. The Legislature plans for this funding to be recurring annually. The Iowa DNR has begun collaborating with us and its other hydrologic partners to determine the best locations for additional automated river flood gauges.

In summary, the historic flood of 2008 greatly impacted the people of Iowa. It is important to realize that many people continue to be directly impacted by last year's flooding still today. We have begun using valuable input from our partners and users to improve the hydrologic services we provide to Iowans. Stay tuned for updates. If you have any questions or suggestions let me know. [Jeff.Zogg@noaa.gov](mailto:Jeff.Zogg@noaa.gov)

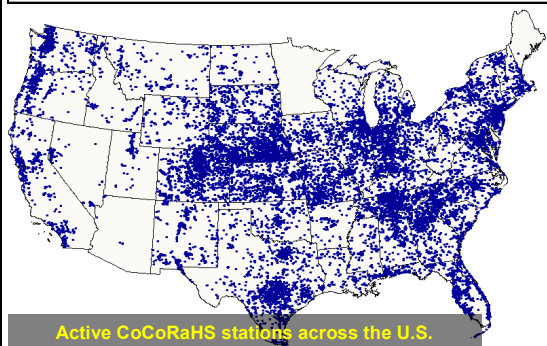
### 2008-2009 Seasonal Snowfall Statistics (July 1 2008 – June 30 2009)

Location	Season Total	Departure	Previous Season Total
Des Moines	41.3"	+4.9"	58.5"
Mason City	32.9"	-6.5"	32.0"
Waterloo	48.6"	+13.7"	53.9"

### Monthly Average High/Low Temperatures

Location	June	July	Aug	Sept
Des Moines	81.9 / 61.4	86.1 / 66.4	83.9 / 64.2	75.9 / 54.7
Mason City	80.1 / 57.2	83.3 / 61.4	80.8 / 58.8	72.9 / 49.0
Waterloo	80.8 / 58.4	84.0 / 62.4	81.7 / 59.8	74.2 / 50.3
Ottumwa	82.2 / 62.1	86.2 / 66.6	83.9 / 64.1	75.9 / 55.0

## CoCoRaHS Observers Needed *continued from page 7*



Active CoCoRaHS stations across the U.S.

trace during a summer afternoon. The one and only requirement as a CoCoRaHS observer is a 4" rain gage to ensure all measurements are uniform. There are several sites available online to purchase these inexpensive rain gages.

The data that the network provides is crucial to the day-to-day operations of meteorologists and hydrologists of the National Weather Service, as well as a great supplement to the climatological database. Other users of CoCoRaHS data include emergency managers, insurance adjusters, the United States Department of Agriculture, engineers, utility companies, outdoor and recreation interests, students, and teachers. If you or anyone you know might be interested, signing up is easy on the CoCoRaHS website ([www.cocorahs.org](http://www.cocorahs.org)).

**NATIONAL  
WEATHER SERVICE  
DES MOINES IA**

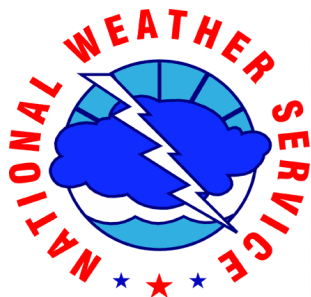
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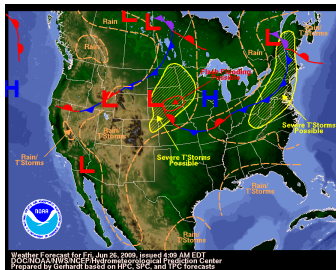


## Upcoming Events for the National Weather Service

**Visit the National Weather Service and  
Emergency Management Booth (in the Hall of  
Flame under the Grandstand) at the Iowa  
State Fair August 13-23, 2009**

## New Service – The Hazardous Weather Briefing

*by Jeff Johnson, Warning Coordination Meteorologist*



The National Weather Service in Des Moines, IA will be broadcasting web-based briefings prior to significant severe weather, flood and extreme winter weather events. The web-based briefings, known as Hazardous Weather Briefings (HWB), will be found in the "IN THE NEWS" section of the NWS Des Moines website. The HWBs will include information about upcoming significant events including a meteorological or hydrologic discussion, what the threat is and when and where it will occur. HWBs will include graphics with a meteorologist narrating the information. Most HWBs will be less than five minutes in length. Look for the HWB in the hours leading up to a potentially significant event.

